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BOOK REVIEWS

How We Think. By JOHN DEWEY. Boston: D. C. Heath & Co., 1910. Pp. vi+224. \$1.00.

In this book Professor Dewey renders an important service to educational theory and to philosophy. It is that rare kind of book in which simplicity is the outcome of seasoned scholarship in diverse fields. Logical, psychological, and educational theory are made to contribute to a work which is intelligible to the layman. Its purpose and character are indicated in this passage from the preface: "Our schools are troubled with a multiplication of studies, each in turn having its own multiplication of materials and principles. Our teachers find their tasks made heavier in that they have come to deal with pupils individually and not merely in mass. Unless these steps in advance are to end in distraction, some principle that makes for simplification must be found. This book represents the conviction that the needed steadying and centralizing factor is found in adopting as the end of endeavor that attitude of mind, that habit of thought, which we call scientific."

The three parts deal respectively with "The Problem of Training Thought," "Logical Considerations," and "The Training of Thought." At the outset the author discriminates between the various meanings of "thought," and marks off the kind of thinking with which the book is especially concerned, viz., "*that operation in which present facts suggest other facts (or truths) in such a way as to induce belief in the latter upon the ground or warrant of the former*" (p. 8). Such thinking enables man to escape from purely impulsive or purely routine action; it also enables him to develop and arrange artificial signs serving to remind him in advance of consequences and of ways of securing and avoiding them; and, lastly, it reacts back upon sense-perception, so that, as a consequence of our thinking, things which we immediately experience possess a very different status and value from that which they possess to a being that does not reflect.

Thinking, however, reveals tendencies which need constant regulation. "Natural intelligence is no barrier to the propagation of error, nor large but untrained experience to the accumulation of fixed false beliefs" (p. 21). These tendencies, the more typical of which are set forth, need the regulation which the right kind of education supplies. The business of education is "to cultivate deep-seated and effective habits of discriminating tested beliefs from mere assertions, guesses, and opinions; to develop a lively, sincere, and open-minded preference for conclusions that are properly grounded, and to ingrain into the individual's working habits methods of inquiry and reasoning appropriate to the various problems that present themselves. No matter how much an individual knows, as a matter of hearsay and information, if he has not attitudes and habits of this sort he is not intellectually educated. He lacks the rudiments of mental discipline" (pp. 27-28).

The development of these habits presupposes natural powers, for which curiosity is the most vital and significant factor in supplying the primary

material. This primary material is at the basis of suggestion or intellectual response. The organization of the facts is what constitutes reflective thought. Hence the classification of pupils as dull and bright is apt to be misleading. Hence, also, the notion that thinking is a single unalterable faculty is an error. "Any subject, from Greek to cooking, and from drawing to mathematics, is intellectual, if intellectual at all, not in its fixed inner structure, but in its function—in its power to start and direct significant inquiry and reflection" (p. 39). Because the true nature of thinking is not appreciated, educational practice shows two extremes. One is to ignore the predisposition of the pupil or else follow it too narrowly, forgetting that the pupil's mind is still plastic and unformed; the other is to entertain "an enthusiastic belief in the almost magical educative efficacy of any kind of activity, granted it is an activity and not a passive absorption of academic and theoretical material" (p. 43).

In the excellent chapter on "School Conditions and the Training of Thought," the author discusses the influence of the teacher's mental habits upon the pupils, and the danger of improper emphasis upon either the "logical" or upon the informational aspects of the subject-matter. Conflicting educational views appear once more in connection with the relation of the psychological and the logical. Education is logical in so far, and only in so far, as it concerns "the formation of careful, alert, and thorough habits of thinking" (p. 58). If we ignore the relation of psychological tendencies and logical achievements, we seem obliged to adopt either of two positions: (a) that method consists of various devices for evoking and stimulating native potentialities, to the neglect of organized subject-matter; or (b) that subject-matter, already defined and classified, is the important thing. In the one case we overlook the proper goal of thinking; in the other we forget that "the logical from the standpoint of subject-matter represents the goal, the last term of training, not the point of departure" (p. 62).

Limitations of space forbid a detailed exposition of the remaining parts. Part II, dealing with "Logical Considerations," defines the problem of thinking as "the discovery of intervening terms which when inserted between the remoter end and the given means will harmonize them with each other" (p. 72). In all reflection there is a twofold movement, a movement from fragmentary details, or particulars, to a connected view of a situation (which movement is called induction); and a movement back to the particulars, connecting them and binding them together (the process which is called deduction). Induction is a process of discovery; deduction is a process of testing. Proper training in thinking gives attention to both processes. Undue emphasis upon facts as facts interferes with discovery; while, on the other hand, if the teacher assumes sole responsibility for the elaboration of general principles, or if general principles be falsely isolated from particular facts, the pupil gets no training in the process of testing. Our educational methods must be neither exclusively analytic nor exclusively synthetic. In the teaching of geography, for example, the analytic method starts with concepts, such as solar system or globe, of which the child has but an imperfect grasp; whereas the synthetic method commits a similar fallacy in tacitly assuming that the pupil's knowledge of his environment is essentially the same in kind as that of the adult. "We cannot assume that the portion of the earth already familiar to the child is such a definite object,

mentally, that he can at once begin with it; his knowledge of it is misty and vague as well as incomplete. . . . Not till he has grasped the larger scene will many of even the commonest features of his environment become intelligible. Analysis leads to synthesis; while synthesis perfects analysis" (p. 115). In general, the formation of concepts is a process which always involves both analysis and synthesis.

In the interesting chapter on "Concrete and Abstract Thinking," Professor Dewey distinguishes between the concrete and the abstract by the criterion of familiarity. So far the distinction is a purely individual matter. There is, however, "a general line of cleavage which, deciding upon the whole what things fall within the limits of familiar acquaintance and what without, marks off the concrete and the abstract in a more permanent way. *These limits are fixed mainly by the demands of practical life*" (p. 137). Hence not only sticks and stones, but wages and taxes are concrete. The theoretical, on the other hand, is that which is not intimately associated with practical concerns. It is a matter for regret, in the interests of logical theory, that Professor Dewey does not apply the distinction more at length. While the distinction drawn by him is illuminating within a certain area, there seems to be room for doubt whether it meets all the difficulties that gather about this perplexing topic. When the layman, to borrow one of Professor Dewey's illustrations, says that water rises in the pump on account of suction, thus regarding suction as a force like heat or pressure, we have a fallacy which is ordinarily regarded as a confusion of the abstract and the concrete. It would seem, however, that such a view is not open to Professor Dewey, but that he is obliged to run counter to usage as established in logical treatises. The illustration is used by him merely to emphasize the necessity of analysis, a necessity which is, of course, equally present in all forms of fallacy. The point is that an attribute, quality, or state, such as "suction," or "gravity," or "progress," or "death," when it is set up as a distinct agency dominating the things to which it pertains, is commonly accounted an abstraction, in spite of familiarity or intimacy of relation to practical life. It may be that other criteria, e.g., position in space and time, are equally inadequate to meet all the situations in which we find it expedient to distinguish between the concrete and the abstract. But at all events it is to be hoped that Professor Dewey will at some time indicate how his view concerning the concrete and the abstract squares with other views.

In Part III the distinction between play and work is held to be, not so much the distinction between activity for its own sake and activity for the sake of the product or result, as the distinction between "an interest in an activity just as it flows on from moment to moment, and an interest in an activity as tending to a culmination, to an outcome, and therefore possessing a thread of continuity binding together its successive stages" (p. 164). This latter distinction avoids the danger of too sharp a separation between play and work, as exemplified in practice in the break between the kindergarten and the grades. A true conception of the nature and relation of play and work also gives us a clue to the organization of educative material. "That the elementary curriculum is overloaded is a common complaint. The only alternative to a reactionary return to the educational tradition of the past lies in working out the intellectual possibilities resident in the various arts, crafts, and occupations, and reorganiz-

ing the curriculum accordingly. Here, more than elsewhere, are found the means by which the blind and routine experience of the race may be transformed into illuminated and emancipated experiment" (p. 169). The chapters dealing with the function of language and of recitation offer many valuable suggestions of a positive and of a negative kind; the whole being animated by the conviction that the goal of intellectual education is a habit or attitude of mind which may fitly be called scientific and with which the native and unspoiled attitude of childhood has a real kinship.

A review of the book can do little more than indicate topics and conclusions. It naturally and inevitably fails to do justice to a work of this kind. Professor Dewey's qualifications for the task he has set himself are too well known to require comment; it is sufficient to say that in this book he is even more successful than usual. Teachers of all kinds will find the book a source of stimulus and enlightenment, and they will doubtless give to it the cordial welcome which it so eminently deserves.

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The Education of Women. By MARION TALBOT. Chicago: The University of Chicago Press, 1910. Pp. ix+235. \$1.37 postpaid.

Vocations for the Trained Woman. Edited by AGNES F. PERKINS. Boston: The Women's Educational and Industrial Union, 1910. Paper, \$0.60; cloth, \$1.20.

Dean Talbot's little book is a real contribution to the rapidly growing literature on higher education. While dealing avowedly with the education of women, it asserts as a cardinal principle for all discussion that education is fundamentally a social problem which must be studied and dealt with in its relations to economic and social conditions and development. This position has been taken in much of the recent discussion, but we know of no other place in which it has been set forth so clearly and cogently.

Miss Talbot divides her book into three parts. Part I describes the changes in women's activities—industrial, educational, civic, philanthropic, domestic, and social—during the last hundred years. Part II compares the educational machinery of about fifty years ago with that of today, citing as examples the past and the present curricula of the Boston and the Chicago public schools, of Vassar College, and of the University of Wisconsin, in order to show how far education has adapted itself to these changes. Part III deals with the present collegiate education of women, pointing out its characteristics, limitations, and possible modifications in the light of modern social, economic, and psychological knowledge.

The book is definite although not exhaustive. Its abundance of concrete matter is illustrative rather than comprehensive, and in places the exposition strikes the reader as inadequate. Anecdote frequently replaces argument, and one questions how far these pages of curricula will speak for themselves except to those already skilled in dealing with such material. Yet the writer's intention is evidently to outline a method of treatment rather than to make a